



BOROUGH OF PRESTON.

ANNUAL REPORT

OF THE

MEDICAL OFFICER OF HEALTH

TO THE

URBAN AND PORT SANITARY AUTHORITIES,

FOR THE

Year ending December 31st, 1902.

H. O. PILKINGTON,

MEDICAL OFFICER OF HEALTH,

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Report of the Medical Officer of Health

TO THE CHAIRMAN AND MEMBERS OF THE HEALTH COMMITTEE.

Gentlemen,

It again becomes my duty to present my Annual Report, this, for the past year of 1902, being the thirtieth which I have now had the honour of submitting to yourselves and predecessors.

It is encouraging, as showing the progress and effect of sanitation, to be able to commence with the statement that, so far as the number of deaths is concerned, the figures are absolutely the lowest of any for the past 65 years, the period during which reliable statistics on this subject have been made out, and preserved in the Borough records.

As will be seen in considering the various causes of death, it is amongst the Infantile Mortality that a great proportion of this reduction has occurred, especially in the fatality from Diarrhœa, and much of this must be attributed to the absence of excessive heat during the summer months, and the comparatively short period during which the usual epidemic of Infantile Diarrhœa ran its course. But still, in addition to this, the continued improvements effected in the homes of the poorer classes must have a tendency to reduce, not only the Diarrhœal mortality, but also that from other diseases to which these children are especially exposed, and the result of work done in past years in this direction is now becoming apparent.

Another climatic condition which exercised a favourable influence upon the rate of mortality was the absence of any severe or protracted period of frost. True during the month of February, and again towards the end of November, and the first fortnight of December, there were periods of strong east wind which exercised the usual adverse influence upon cases of Respiratory disease, but there was no time when a very low temperature was long recorded. This bears out what I have so often before noticed that, contrary to ancient adage, the healthy year in this part of the country is that which combines a mild winter with a cool and rainy summer.

Although Small Pox had for some time been present in London, it was not until the beginning of the year that it effected an establishment in Lancashire. Since there was every reason to fear that before very long the infection would be carried to Preston, the Ducker Hospital situated at Holme Slack was, towards the beginning of the year, overhauled and put into efficient working condition.

On March 17th, a child, unvaccinated, who had been in contact with the disease at Nelson, developed Small Pox, and was the same day removed to hospital. The patient did well and was discharged on May 2nd. But a few days before this, a second case had appeared in a different part of the town, the history shewing that the infection had in this instance been derived from a totally different source. The patient was the wife of a soldier, and the ship upon which she was returning from India, had touched at Port Said, and every thing went to show that it was there and then that the infection was contracted. This patient was also removed to hospital, and though the attendant circumstances of the case rendered it probable that there would be some further spread of infection, no other person was affected, and with the patient's discharge some weeks afterwards the outbreak terminated, and the town was once more free from the disease.

In this condition it remained until towards the end of the year, although meantime the disease had been making rapid progress throughout the country, and more especially in Liverpool and the principal Lancashire towns. A constant watch was kept both upon the coasting vessels trading with this Port, and the Common Lodging Houses, since it was through members of the tramp class that the disease had been first introduced into many of the adjoining towns.

Nothing further occurred until December 2nd, when I was called to see a suspected case in a hawker who had been vending smallwares in the surrounding country district. This case was immediately removed to hospital, but from that date until the end of the year there was a constant succession of fresh cases, some of which could be traced to the patient in question, while others were certainly the result of fresh importations of disease. A strong element of danger lay in the fact that the majority of the patients were residents in Common Lodging Houses, and that a large proportion of them were unvaccinated. Still their immediate removal to hospital, disinfection of the premises, and re-vaccination of all the other inmates resulted in the disease being confined to a much smaller number of cases than might under these unfavourable circumstances have been expected. With a view to encourage re-vaccination amongst the floating population of the Lodging Houses, payment of one shilling was made to all who were willing to adopt this precautionary measure. The same safeguard was gratuitously offered to the families and friends of patients living in their

own houses, and its general acceptance proved one of the most important agents in keeping down the spread of infection. Reference has already been made to the number of unvaccinated cases found amongst the patients admitted to hospital, and the only death which occurred amongst those admitted during the year was that of a young child which had never been vaccinated until after it had contracted the disease, and which succumbed on January 6th, 1903, to a severe confluent attack. The general neglect of vaccination for some years past has been the chief cause of the disease having become so widely spread throughout the country, and the return wave of fear which has of late driven so many to seek this protection will no doubt have a good effect for some time to come. As I deal only with matters occurring up to the end of the year, and as a complete Report upon the Small Pox outbreak will, when it is concluded, have to be drawn up, I leave this subject for the present.

From Typhoid Fever the mortality was considerably below the usual amount, the number of deaths recorded from this cause having been 21, as against an average of 34 for each of the previous six years.

The reported cases of sickness amounted to 152, so that the case mortality, the ratio of deaths to cases of illness, was 13·82 per cent.

The disease, both as regards sickness and mortality, was distributed over all parts of the town, and the enquiries made with regard to each case showed that whereas there were not unfrequently local causes sufficient to account for the occurrence of the disease, there was no common source of infection.

The epidemic of Scarlet Fever from which the town suffered throughout the year 1901, still continued, though in a modified form, in spite of all restrictive efforts, during the whole of the past year. The deaths were reduced to 20, and that the disease was of a generally mild type is shown by the fact that the reported cases of sickness numbered 614, so that in but little more than 3 out of every 100 was there a fatal termination. No doubt it is to this very mildness in the symptoms that the persistency with which the infection has lingered in the town must be attributed; since in a number of cases, treated without medical assistance, the true nature of the illness has not been recognised in the earlier stages, and the children have been allowed to attend school, and so spread infection, until desquamation, or some one of the numerous affections which follow in the train of Scarlet Fever, has served to arouse suspicion as to the true nature of the previous illness. The circumstances attendant upon many of the cases rendered effective isolation a very difficult matter, but as far as possible this was insisted upon, and the Sanitary Inspectors made frequent—in some cases daily—visits to see that preventive measures were carried out. Although Avenham,

Moorbrook, and Fishwick Wards escaped without a single death from Scarlet Fever, they were not free from cases of sickness, indeed at some time or other during the year the disease may be said to have been present in every part of the town. The death rate only amounted to 0·18 per thousand, and was exceeded in all the principal towns of Lancashire.

Measles was present in epidemic form at the beginning of the year and was so widespread in its distribution that I advised the closing of the Schools some time before the commencement of the Christmas holidays, and also that the latter should be extended for an additional fortnight.

During this time the Schools and Cloak Rooms were disinfected and cleaned, with good results, since the epidemic began rapidly to abate, and by the end of March was practically at an end. The death rate from this cause did not exceed 0·50 per thousand, and was exceeded in many of the large towns, Burnley, Bristol and Cardiff showing the heaviest mortality.

The deaths from Diphtheria were the same in number as in the preceding year, viz.: 17, but the reported cases were somewhat lower—60 as against 65—so that the case mortality works out at the slightly higher figure of 28·33 per cent. The actual death rate from this disease was 0·23 per thousand, a rate exceeded in many of the other large towns, notably in West Ham, Bristol, Burnley and Cardiff. With the exception of 2 who were somewhat older, all the fatal cases occurred in children between the ages of 1 and 5 years.

In this, as also I believe in other towns, there has of late years been a tendency to classify under the heading of Diphtheria diseases some of which would formerly have been designated Croup, and as a consequence, whilst the mortality from Diphtheria has increased, that from Croup has in like proportion been reduced. So during the past year the deaths attributed to the latter disease only amount to 15, or less than the average number for each of the past six years.

Whooping Cough was the cause of 25 deaths, of which 19 were infants and 6 children between the ages of 1 and 5 years. These deaths were distributed throughout the year, and though the disease was never entirely absent from the town, it could never be said to have assumed epidemic proportions.

The absence of an Isolation Hospital, or indeed of any place to which a single patient could be removed, again offered an obstacle to the satisfactory treatment of many of these cases of Infectious disease. This is of course excluding Small Pox, all cases of which were, as already shown, removed to, and treated at, the Ducker Hospital in Holme Slack. There were numerous applications for the removal of patients, especially of those suffering from Typhoid Fever, where the surrounding conditions were such as to imperil the patients'

chance of recovery, while at the same time they were fraught with danger to the other inmates of the house, and even to those living in the neighbourhood. But it was not possible in any case, no matter how pressing the circumstances, to assent to such application, the provision of nursing assistance being all that under the present defective conditions, I was able to offer. Although this was a very material help, still it forms but a poor substitute for all the advantages which an Isolation Hospital can offer, both as regards the patient and the Public Health.

The task of obtaining a site which will provide all—or even most of—the conditions required for such a building, is always one of difficulty, and it is one which throughout the year has engaged the attention of the Sub-Committee appointed to deal with the question.

Land sufficient in amount, and suitable in position, is difficult to find within the Borough or even within a reasonable distance outside, and this is especially the case in a town like Preston which has not sought to increase its area by the incorporation of surrounding districts.

In the present instance it is to be hoped that the difficulty of obtaining a site will be overcome by the Corporation giving up for hospital purposes a piece of ground, forming part of “Ancient Estate,” and situated in Holme Slack Lane, immediately upon the northern boundary of the Borough. It is land well suited for an Isolation Hospital, and though it might perhaps be put to uses which in the future would be productive of a greater income, it cannot be devoted to a better, indeed to a more really remunerative purpose, than that of providing the people of Preston with a building, from the want of which they have so long and so severely suffered.

Although, as already stated, the Summer Diarrhœa outbreak was confined to shorter limits, and was attended with a considerably lower mortality than in previous years, it still made its unwelcome appearance in due course after the rise in the ground temperature, and during the months of September and October claimed its quota of infantile lives. For many years past I have pointed out the connection which exists between an earth temperature reaching, at a depth of four feet, to 56 degrees, and the outbreak of Diarrhœa; and it is somewhat remarkable to notice that while in July of last year the earth temperature on several days nearly reached the critical point, it was not until September when it actually reached and exceeded it, that there was any decided rise in the Diarrhœal mortality. Then the deaths steadily went up week by week, the highest return being that for the first fortnight of October, a much later period than that in which the maximum mortality is generally registered. In the Chart, which as usual is appended to this Report, the intimate relation-

ship between the earth temperature and the epidemic of Infantile Summer Diarrhoea is well shown, as is also that between the mean daily temperature of the air and the fatality caused by such diseases as Bronchitis.

The Chart for 1902 resembles those of former years in as much as the curve of Diarrhoeal mortality corresponds with that of the four foot earth thermometer, but differs from them inasmuch as the point of maximum mortality is recorded much later in the season, and because it happily reaches a much lower level, and so represents a diminished number of deaths.

The deaths from Consumption—115—though only very slightly lower than those recorded from this cause during 1901, still show that an improvement in the mortality from this disease has been steadily going on for some years past.

In all deaths from Consumption, gratuitous disinfection of the room, or rooms, can be obtained, and this has very possibly had its effect in checking the spread of what is now generally regarded as one of the infectious diseases.

But I have always thought that it is by attention to general sanitation, rather than by the destruction of a specific germ, that a reduction in the death rate from this disease will be obtained. Improvement in the homes of the working classes, better ventilation, and better sanitary accommodation in the factories, and workshops, and a wider and more general knowledge of the first laws of health, all tend to bring about a better physical condition, and one therefore better able to withstand the attacks of a disease, which, if not in the first instance engendered, is certainly assisted in its inroads by dirt, damp, and evil social surroundings.

In addition to the 115 deaths from Consumption, 134 were ascribed to other forms of Tubercular disease, chiefly occurring in young children, and taking the form of Tubercular deposits in the brain or its membranes, or in the abdominal glands.

From Bronchitis, Inflammation of the Lungs and similar diseases, generally grouped together as diseases of the respiratory organs, the deaths amounted to 393, and here again there is an improvement over the average of past years. As stated at the commencement of this Report, the cold weather and keen east winds which prevailed at the beginning and close of the year had their usual effect in increasing the mortality from diseases of this class, but at no time was the mortality unusually heavy, and there was moreover a comparative absence of Influenza, which so often acts as the forerunner, if not the exciting cause, of diseases affecting the lungs and air passages.

To Influenza itself, as a primary cause, the deaths of not more than 23 persons were attributed, a number which compares favourably with that from the same cause in previous years.

The deaths from those diseases which are only met with in infants and young children amounted to 386, and it is to the reduced mortality from these causes that the general low death rate for the year must in a great measure be attributed. Of these 386 deaths, 323 occurred in infants under the age of 12 months, and of these 89 were registered as due to Premature Birth, meaning that although the child had been born alive it had never had a proper grasp of life, and had in the majority of cases succumbed within a very short interval of its entrance into the world.

Throughout the year more than usual attention was given to this important subject, and a Sub-Committee, appointed to consider the question, held numerous meetings, took the evidence of persons likely to be able to throw light upon the working conditions and social life of the operative classes, and eventually embodied the result of their labours in the following Report:—

INFANTILE DEATH RATE.

REPORT OF SUB-COMMITTEE.

DEATH RATE PER 1,000 FROM THE UNDERMENTIONED DISEASES, GIVEN IN SIX 5-YEAR PERIODS, FOR THE PAST 30 YEARS.

	Small Pox.	Typhoid.	Scarlatina.	Measles.	Diarrhoea.	Whooping Cough.	Diphtheria.	Croup.	Consumption	Bronchitis.	Pneumonia	Teething.	Old Age.	Violence.	Other Diseases.	Total.
1871-1875..	0·16	0·56	1·62	1·01	2·91	0·74	..	0·69	2·92	3·55	1·68	4·20	0·97	..	9·54	30·93
1876-1880..	0·09	0·40	0·90	0·38	2·33	0·60	0·10	0·24	2·47	3·37	2·28	6·12	1·00	0·57	6·55	27·42
1881-1885..	0·00	0·37	0·48	0·38	2·02	0·48	0·09	0·22	2·01	3·54	1·68	5·04	0·83	0·50	6·63	24·73
1886-1890..	0·06	0·40	0·26	1·01	2·30	0·66	0·18	0·20	1·75	3·13	2·28	5·57	0·82	0·54	6·98	26·23
1891-1895..	0·00	0·30	0·25	0·61	2·32	0·44	0·08	0·09	1·60	2·58	1·85	5·33	0·68	0·48	6·48	23·16
1896-1900..	0·00	0·31	0·08	0·76	2·06	0·40	0·17	0·16	1·24	2·54	1·31	4·87	0·74	0·46	5·64	20·80

Year.	General Death Rate.	Infantile Deaths per 1,000 Births.
1876-80	27'42	...
1881-85	24'73	208
1886-90	26'23	229
1891-95	23'16	235
1896-1900	20'80	236

In consequence of the fact, as shewn by the above Tables, that while there has been a steady and continuous decline in the general mortality of Preston during the past 30 years, the infant mortality has shewn an increase, we were appointed a Sub-Committee to enquire into the causes of our high Infantile Mortality, and after careful consideration of the question and the examination of numerous Witnesses having special facilities for correct observation, we now submit our conclusions and the measures we think might be taken to combat some, at any rate, of such causes.

First among these causes is the employment of female labour in mills. An occupation requiring a woman to stand during the greater part of the day when continued up to within a few days or even hours of the time of parturition, must act to the detriment of the offspring, and there is less chance of the latter coming into the world fully grown, well formed, and in good health.

Many deaths taking place during the first month which are returned as due to Premature Birth, Immaturity, Congenital Debility, Convulsions and the like may safely be ascribed to this cause.

Again, the return of the mother to her work within a short period after confinement, thus depriving the infant of a mother's care, and of the sustenance which nature intended for it, constitutes even a still greater evil. With this is connected the nursing out of infants, which exposes them to violent and sudden changes of temperature during their removal night and morning through the cold air of the streets.

Some mothers are compelled to resume work as early as possible, as they are the main support of the families, but there is a marked disinclination on the part of many young mothers to stay at home and tend their children, preferring as they do the life at the mill to that of nursing.

But a third and more important cause consists in the very habits of the operative classes themselves, in their ignorance of the first laws of health, and in their blind adherence to customs which have long since been deservedly condemned.

There are few people with less knowledge or experience of household duties than the ordinary factory girl, and as a consequence when she becomes a wife and a mother, knowing little of the duties required of her, she is content, as regards the management of her children, to follow the example of her parents and the customs of those amongst whom she lives. Accustomed to a heated atmosphere, the factory operative above all things fears a draught, and so the bedroom doors, windows, and fireplaces are kept closed; thus the air soon becomes foul and poisonous, and in this way the seeds of tubercular and scrofulous disease are engendered and transmitted from one member of the family to another.

A high mortality is also met with among children of mothers who have children in quick succession, as also of mothers (e.g. small shop-keepers) who are very actively employed for many hours each day.

Unwholesome food and the want of cleanliness in its preparation and administration are the direct causes of many Infantile deaths. Bread and starchy preparations are substituted for milk, and where the latter is given, the feeding bottle from its dirty condition is frequently a source of danger to the infant. After the first week or two, proper and systematic washing of the infant is less and less frequently done, fresh air and sunlight are not recognised as necessities, and altogether there is an absence of proper *nursing*, a word pregnant with meaning as applied to Infant life.

Many houses of the poorer classes are crowded together, and their yards small, badly paved, largely taken up by the privy and ashpit, and the subsoil is honeycombed and infiltrated with human and animal excreta.

To these conditions are due Infantile Summer Diarrhœa, which in certain parts of Preston, may be definitely predicted after the ground temperature at a depth of four feet has reached a height of 56 degrees.

Among the causes may be mentioned "Insurance," by which the death of a child brings a monetary gain to the parents: the habit of allowing very young children to sleep in the same bed with the parents, resulting in deaths from suffocation, or overlaying; and the use of sleeping stuffs to quiet a fractious child, or to ensure a good night's sleep.

Of causes which are more especially associated with the increase in the Infantile Mortality may be named

(1.) The diminished stamina of the parents. In Preston, as in the older manufacturing towns, where there is little importation of fresh blood, there is a risk in the intermarriages (often at an early age) amongst persons of the same class, and a danger of the offspring becoming more and more enfeebled.

(2.) The increasing use of means to prevent conception or procure abortion, which, if unsuccessful, must have a prejudicial effect on the health of the child.

(3.) The alarming increase in the consumption, by young women and mothers, of alcoholic beverages, exercising a baneful effect on the constitution of the child before birth, but more especially leading to carelessness and neglect of the child after birth, and at that period of its life when care and attention are most needed.

These then are the causes which sometimes separately, but more frequently in combination, lead to the heavy infantile death rate in Preston.

As regards Remedies—the Corporation can close all houses and cellars unfit for habitation, enforce the removal of all nuisances from the neighbourhood of dwellings, require the conversion of dangerous privies and ashpits into some simple form of water closet and ashpail, enforce flagging of backyards, remedy unsatisfactory drains, and try to secure flagging of sidepaths and improved paving of streets, so that efficient scavenging may be possible.

The subject of Hygiene can be kept constantly before the public, and in times of special danger short instructions to parents can be issued. A closer scrutiny should be made in [cases of uncertified death, and this could be done by a medical adviser to the Coroner, whose duty would be to make enquiry into the circumstances of such deaths, and to decide whether or not a more searching investigation was required.

But it is to education in one form or other, we look for the main remedy. In our day schools through which all the children have to pass, we expect important help in this direction. If the children in the latter years of their school life were to receive special instruction in Hygiene, &c., and the girls instruction in Household Management, &c., we think an important improvement might ultimately result; the Education of the children would to some extent be reflected in their homes, and the knowledge thus gained would probably be retained to the period [when they establish homes of their own. To achieve this end we recommend that efforts be made to induce the Managers of every Elementary School to make Temperance, Hygiene and Household Management special features in the education of their elder scholars.

Education by means of Lectures will be of assistance; at present many are being given in Evening Schools, but those who really need educating do not attend. As it is amongst this class that the infantile mortality is greatest, we suggest that we obtain, as is done in other large towns, the services of two Female Inspectors, whose duties would consist in House to House Visitation, and the delivery of Cottage Lectures: instruction being given with regard to the laws of health, ventilation and cleanliness of houses, personal hygiene, infant feeding, &c.

We are convinced that little, if any, permanent improvement can be expected until working men and women display a more serious interest in matters connected with Health and Sanitation, and insist upon their children taking advantage of such Educational facilities as are placed at their disposal.

In conclusion, we desire to place on record the fact that many if not all the matters set forth have been previously mentioned by Dr. Pilkington in his Reports.

One outcome of the Sub-Committee's labours and Report has been the appointment of two Female Health Visitors, whose duties are to visit houses situated in the poorer parts of the town, to give instruction in household management, and in the care and feeding of young children, and in short to bring about a better sanitary condition both of the house and its occupants. This is a course of action which has already been adopted in many of the large towns, and in my next Annual Report I hope to be able to speak of the benefits which have resulted from it in the case of Preston.

Now the great proportion of these Premature Births, and consequent deaths, occur in the families of the operative classes, and the causes are to be found in the early marriages and feeble stamina of the parents, and in the fact that the mother continues her occupation at the mill during the whole period of pregnancy, and not unfrequently up to the immediate time of parturition.

Such conditions must militate against the health of the mother, and consequently against the vitality of her offspring, and are the cause of many deaths amongst children, which, though born living, can never be said to have had a fair chance of life. Of the other Infantile deaths, some were caused, as already shown, by Diarrhœa, and others by the convulsions so often associated with the process of teething, especially in children who have

a Tubercular tendency, or who, at this critical period of their existence, are supplied with unsuitable food, or who have not the benefit of good sanitary surroundings. The rate of Infantile mortality as measured by the number of children, out of every thousand born, who died before attaining the age of twelve months was 188, a figure which compares very favourably with that of former years, but still stands as absolutely the highest amongst the large towns with which, for the purpose of this Report, I have each year been accustomed to make comparison.

The deaths registered as due to Old Age, Senility, Senile or Natural Decay, &c., numbered 105; and, as showing that one man may be old while another is comparatively in the prime of life, the ages of those so registered varied from a little over 60 years to 102, the latter, one of the greatest ages ever recorded in the Borough, being that of an old lady, who up to the time of her death, was resident in Trinity Ward.

Of the 55 deaths registered under the heading of Violence, 4 were due to suicide, but the great majority were the result of some form of accident, and so occurred in the Royal Infirmary, to which institution the sufferers had been removed at the time of injury.

The remaining deaths—641 in number—were due to diseases other than those already enumerated, and of these a further classification, both as regards age and cause, is furnished in Table No. 4a. Diseases of the Heart and the larger blood-vessels accounted for 191 of these deaths, while 85 were due to Cancer or some allied form of malignant disease. Not more than 33 were ascribed to Alcoholism or Cirrhosis of the Liver, but the smallness in the number attributed to this, and to the various forms of Venereal disease, may be put down to the not unnatural inclination on the part of the certifying Medical attendant to take the most charitable view as to the cause of death.

Altogether then there was registered throughout the year from all causes, and at all ages, a total of 1998 deaths, which, upon a population estimated at 113,766, represents a rate of mortality equal to 17.56 per thousand.

As regards distribution Table No. 3 shows that the lowest rate—11.09 per thousand—was recorded in Avenham Ward, and the highest—22.26—in Trinity Ward. The next highest was that of St. John's—18.87—whilst the second best place was taken by Ashton Ward with a rate of 14.10. The other Wards varied from 15.13 in Moor Brook to 18.02 in Park Ward, all the remaining Wards being somewhat below the average for the whole town. These calculations are of course based upon an estimated population for each of the twelve Wards, and the accuracy of this calculation becomes more doubtful according to the length of time which has elapsed since the last Census. It still serves to show that the

most satisfactory death rates are in the better parts of the town, where, in addition to other advantages, the open air spaces are most numerous, and where the relative density of the population is also the lowest. All this is in favour of a town extending its boundaries, and taking in the outlying suburban districts, a policy which has certainly not prevailed in Preston, and which has consequently placed the town in a disadvantageous position as compared with many of her neighbours.

November, with a total of 220, showed the greatest number of deaths for any one month, followed by February with 207, and March with 203, this being due to the prevalence at these times of such diseases as Bronchitis and Inflammation of the Lungs, in many instances occasioned, and brought to a fatal termination by the cold east winds. The fact that July showed the smallest number of deaths—92—was owing to the comparatively low temperature which then prevailed, and the consequent absence of Diarrhœal disease. The total rainfall for the year was 30·26 inches, the greatest amount being recorded during the last fortnight of October.

The Births—3278—show a decrease upon the number recorded during the preceding year, and represent a rate of 28·81 per thousand of the population. In spite of this, and in consequence of the reduction in the number of deaths, the natural increase is equal to a gain of 1280 lives. The steady diminution in the number of Births throughout the kingdom is a matter of serious importance, and some of the causes are undoubtedly those touched upon in the Report upon the Infantile Death rate.

Further information bearing upon the Vital Statistics of the town during the past year will be found in the appended Plans and Tables, which, to facilitate comparison, are drawn up on the same lines as those of former Reports.

The Sanitary work of the year both in its nature, and in the amount accomplished, is of a satisfactory character. Attention has in the first place been directed to the old style of privy-midden, which in the older parts of the town is still found occupying so much of the limited yard space at the backs of the houses. In each of the Sanitary Districts considerable areas have been cleared of these filth receptacles; which at all times, but especially during the summer weather, and at those periods when they require to be emptied, fill the surrounding air with noxious effluvia. The substitution of the more cleanly water-carriage cannot fail to have its desired effect in the reduction of Zymotic disease, and in many localities the improvements carried out in recent years, is beginning to make itself felt, and to bear good fruit in this respect. And the necessity for these improvements is the more urgent, because the districts in which these nuisances still remain are often those in which the yard space

has either originally been so contracted, or has been so encroached upon by unauthorised additions to the house, that a free circulation of air is prevented, and the smells from the ashpit must find their way into the dwelling itself. These conditions are especially found in the main thoroughfares where it might be expected that the yards would be of fair size, but where on the contrary they are found to be small, and irregular in shape, and where it would seem as though everything tending to health had been sacrificed to business purposes. In such cases additional space cannot be obtained, and the only course to adopt is to substitute for the privy some cleanly form of water closet, to fill up the ashpit and so make some slight addition to the yard area, and to provide a movable pail for the ashes. But such a course to be successful requires the assistance and co-operation of those benefitted—the inmates of the house—and it should be understood that a water closet requires a certain amount of rational attention, and that the ashpail is intended for ashes, and not for all kinds of garbage and household refuse. Such refuse should—and can—be destroyed upon the kitchen fire, and in this way each household may be made to provide its own refuse destructor. As I have before noted there is a growing disposition on the part of property owners voluntarily to carry out improvements of this kind, and in this praiseworthy action it is only right that they should have the assistance of those for whose benefit the work is done.

Although in certain cases, and on account of the especially bad nature of the surroundings, it has been considered necessary to deal with small groups of houses, or even with single dwellings, these alterations have as a rule been carried out in districts, since there is little benefit in relieving the inmates of a house from a nuisance upon their own premises, and yet leaving them to suffer from that in the yard of their immediate neighbour. In No. 1 District the whole of the streets on the south side of New Hall Lane, from London Road to Middleton Street, have been relieved from the midden nuisance, while in No. 2 District the same course has been adopted in a square block comprising Turner Street, Cromwell Street, Astley Street, and Townley Street, and also in the long rows of houses forming Great Hanover Street, Sussex Street, and Essex Street.

In No. 3 District attention has chiefly been given to the Maudland district, and notices have been served for Maudland Bank and the streets running off it, for Ashton Street, and the streets on its easterly side, as well as for property in Harcourt Street and Aqueduct Street.

In No. 4 District improvements have been carried out in Bow Lane, Arthur Street, Marchand Street, Euston Street, and Ribble Bank as regards Christ Church Ward, and in Carr Street and Albyn Bank Street in St. John's Ward.

The situations of all these blocks, as well as of other smaller ones, which have received attention during the past year, are all marked on the appended Improvement Plan, which now forms a record of the work done in this direction during the past eighteen years.

There now remain in Preston practically no cellar dwellings, and very few houses built back to back, or having no through ventilation. Of the small number which still remained having the latter defects, a still further reduction has been made during the past year.

Another sanitary improvement to which attention has been largely directed during the past year has been the flagging of yards and lobbies. This is carried out under the powers obtained in the Improvement Act, of 1900, and is a measure especially required in the same localities as those in which the privy-middens are still found. An ordinary pebble paved yard is seldom kept in anything like a satisfactory condition. In addition to the defective places, the interspaces between the stones form a considerable proportion of the yard area, and through these openings offensive liquid matters, carelessly thrown on the yard surface, soak into the subsoil. The latter as a consequence becomes polluted to a considerable depth with organic matter, and this in turn gives off offensive gases, which, rising into the air, certainly play a part in the causation of such diseases as Summer Diarrhœa. In a well flagged yard, with good joints, and a proper fall, this sub-soil pollution is prevented. The surface water is carried off to the gully, thus preventing dampness of the house foundations, and the possibility of keeping the yard surface clean and tidy acts as an incentive to greater tidiness in the house itself.

In addition to the improvements thus effected in the back yards and closet accommodation, a great number of sanitary defects, varying in kind and in importance, were remedied, either at the verbal request of the Inspector, or else after service of the usual formal notice.

In but few instances was it found necessary to have recourse to legal proceedings in order to enforce compliance with these notices. The majority of these prosecutions were for neglect of limewashing, and ended in the work being done, together with the payment of a small fine and costs. For a somewhat serious effluvium nuisance in No. 2 District, the offender was ordered to pay a fine of £5 and costs.

An additional Table has this year been added to those which form the Appendix to this Report, viz.:—No. 10 which gives a summary of the work done under the Factory and Workshop Act, 1901. It is unfortunate that under this Act, there should be no clear definition of the duties which respectively appertain to the Inspector of Factories and the Local Sanitary Authority. On

the other hand their powers and duties are so intermixed, that in some cases it becomes a difficult matter to decide within whose province it is to deal with certain insanitary conditions, and in others the remedial powers can only be carried out in a roundabout fashion. The result is a certain loss of time, the possibility of friction between the two Departments, and increased annoyance to the Factory Master or Manufacturer, who very likely already considers himself somewhat over-inspected. Gradually during the past two years a better knowledge has been obtained, and a Register compiled, of the various Workshops, Bakehouses, and out-door workers' residences throughout the town, and as may be seen from the Table in question—No. 10—a considerable number of defects have been remedied. All this tends to an improvement not only in the health of the working classes, but also in that of the general public, who have to eat, wear, or otherwise make use of, the various articles which are turned out from the workshops in question. In recent years, great changes for the better have taken place in the Factories and Workshops in which the operatives and workpeople generally pursue their calling, and the attention and expense which has been given to their sanitary surroundings in these places should act as an incentive to them to give greater care to the homes in which they spend their hours of leisure and of sleep.

It is of equal importance that both should be kept in a healthy condition, but while the legislature has looked after the one, it rests with the workman himself to attend to the cleanliness and salubrity of his house and of his household.

Under the Food and Drugs Adulteration Act, samples of various kinds amounting to 220 in number were purchased and submitted to Analytical examination. A great proportion of these—74—were samples of Milk, because it is essential that this should be unadulterated, and should contain all those constituents which, in a state of natural combination, make Milk a perfect food for young children. In no case was anything found sufficiently wrong to warrant legal proceedings, although in one or two instances, where the Milk was hardly up to the desired standard, the vendor was cautioned by letter.

For the adulteration of Coffee with an excessive amount of Chicory, a tradesman was fined 10/- and costs. The more substantial fine of £5 and costs was inflicted in a case of Butter adulteration, the attendant circumstances, and the difficulty placed in the way of obtaining a true sample, increasing the gravity of the offence.

The advantages offered at the Public Abattoir for the cleanly, humane, and expeditious slaughter of cattle, and for the subsequent cooling and setting of the carcasses, are becoming better known and more largely used. Both there and at such Private Slaughter-houses as still exist within the Borough, a large quantity of meat, amounting to

149,026 lbs. in weight, was condemned and destroyed. All this was however duly notified and voluntarily submitted for examination, and therefore in no instance was there a prosecution. There were two cases however in which the Meat Inspector seized the carcasses of diseased Pigs, which were dressed for food in the usual way, and offered for sale in the Public Market. In each case a Magistrate's order for destruction was obtained, and the subsequent prosecutions resulted in fines of £3, and £15 being severally inflicted, together with an order for the payment of costs.

The Common Lodging Houses have not only received the usual amount of supervision, but during the latter part of the year, both when there was a probability of Small Pox being introduced through this channel, and after it had made its appearance, daily visits were made, and the inmates, coming and going, were kept under close inspection.

This led to the early detection, and prompt removal of a number of cases; and was one great factor in keeping the infection within such comparatively circumscribed limits.

With few exceptions these Lodging Houses, not having been built for a special purpose, are unsatisfactory, but during the year certain improvements were made, especially with regard to the flagging of the back-yards.

The population on the Preston, Lancaster, and Kendal Canal is not a large one, especially in comparison with the number who live on the silent highways of the Midland and Southern Counties. They are however subject to the Regulations of the Canal Boats' Acts, and the following Report dealing with the condition of the Boats and their occupants, during the past year, has already been forwarded to the Local Government Board:—

COUNTY BOROUGH OF PRESTON.

CANAL BOATS ACTS OF 1877 AND 1884.

In accordance with the provisions of Section 3 of "The Canal Boats Acts, 1884," I beg to submit the Annual Report for the past year of 1902, dealing with the registration and general condition of those Boats which during that time have been working on the portion of the Preston, Lancaster, and Kendal Canal situated within the jurisdiction of this Sanitary Authority.

As in the previous year the duties of inspection have been carried out by Sanitary Inspector Henry Livesey, upon the same terms; no special remuneration being given for the work of Canal Boat inspection.

The number of boats at present upon the Register is 34. The boat "Daniel," of Kendal, after being laid up for a considerable time, passed into the hands of a Preston owner, who, after putting it into good repair, applied for, and obtained, its re-registration under the name of "Nellie LIII."

All the boats upon the Register, as well as a number of those registered at Lancaster, have been inspected during the year, the total number of visits made having been 96.

In 9 of the boats conditions were found not in accordance with the Regulations.

The total number of infringements thus found, and dealt with, amounted to 19, particulars of which are shown in the Statistical Supplement appended to this Report. In every instance the faulty condition was remedied upon representation by the Inspector, and therefore in no case was it necessary to have recourse to legal proceedings. A notice served upon the boat "Robert XXIII," by the Garstang Anthority, for absence of Certificate, was attended to in this district, the owner supplying the Captain with the required paper.

No opposition has been offered to the Inspector in the discharge of his duties, and the general condition of the boats has been clean and satisfactory.

A case of Scarlet Fever occurred in the house of the Captain of "The Prince of Wales," registered at Lancaster. The occupants of the boat were kept away from the house until after it was fumigated, and no spread of infection followed.

Particulars as to the occupants of the boats, and other details, are given in the Statistical Supplement.

H. O. PILKINGTON,

January 27th, 1903.

Medical Officer of Health.

Amongst other works tending to increase the cleanliness of the town, and the consequent comfort and healthiness of the inhabitants, has been the flagging of the footpaths and sett-paving of the streets. The amount of work done in these directions, during the past year, amounted respectively to 17,510, and 18,915 square yards.

Extensions made to the working capacity of the Destructor situated upon the Marsh now admit of some additional 3,500 tons of refuse being dealt with each year. The sanction of the Local Government Board has also been received for the borrowing of money to be expended in the erection of a new Destructor upon the Moor, and for the extension of the Store Yard and Stables. In connection with these premises there will also be a new Disinfecting Station, fitted up with the most modern appliances for treating articles of bedding, clothing, &c., which have been exposed to infection. The above increase in Destructor capacity will render it possible for the whole of the town's refuse to be promptly and efficiently dealt with, and as a consequence there will be no further necessity for "tipping," a practice frequently productive of a nuisance at the present time, and not seldom causing danger to health in future years, when the ground thus made comes into use for building purposes.

Amongst other works of a Sanitary character, must be mentioned the erection of a new Mortuary and room for Post Mortem examinations. These, situated in the yard adjoining the recently re-constructed Police Station, will take the place of the old buildings in Tithebarn Street, which latter were from the first of faulty design and construction, and utterly unsuitable for the important purposes to which they had to be put. Buildings for

these purposes are necessary in all large towns, and those in process of erection will combine all modern improvements, and so will form a very important adjunct to the sanitary equipment of the Borough.

Throughout the year the water supply was sufficient, and of good quality for all domestic purposes ; but in this direction again important improvements have been made both to increase the storage capacity, and also to ensure that the watersheds and gathering grounds shall remain free from all chance of contamination. Municipal authorities of large towns have few more difficult questions to face than those of providing a continuous and sufficient supply of pure water, and of efficiently dealing with the resultant waste water and sewage. With respect to both these points Preston stands in a good position, since the water supply—always of good quality—has of late been increased in quantity, and safeguarded as to purity, whilst the land at Freckleton continues to afford all the requirements of a model sewage farm.

As in former years, I had the privilege of attending the Congress of the Institute of Public Health, held during the past year at Exeter. In addition to the opportunity thus afforded of seeing the sanitary condition and appliances of different large towns, and of hearing papers and discussions on matters connected with Public Health, these meetings enable Medical Officers, and others having control of sanitary matters, to interchange opinions, and to enquire into the various difficulties with which they are from time to time confronted, and to devise the best means for their removal.

In conclusion it is satisfactory to note that the past year of 1902 has been marked by considerable progress in sanitary matters, and that the hopes which, at the conclusion of my last Report, I expressed for the success, and general prosperity of the Guild have been fully realised.

H. O. PILKINGTON,

MEDICAL OFFICER OF HEALTH.

May 9th, 1903.

PORT SANITARY.

As regards Port Sanitary Work, nothing of great importance occurred throughout the year.

There was an increase in the number of vessels—both steamers and sailing ships—inspected, but their general condition as a rule was satisfactory.

The defects found to be existing were of the usual character, and no difficulty was experienced by the Inspector in having them put right. Without being of vital importance, they were such as would be likely to interfere, possibly with the health, and certainly with the comfort of the crew; and the list of defects remedied, as given in Table No. 14, represents a considerable amount of work done, all tending to the better health of those on board.

There were no special reasons for fearing the importation of either Cholera or Bubonic Plague, although the possibility of their introduction was always kept in mind, and on account of the latter disease, a crusade was made against the rats found to be swarming on board several vessels hailing from foreign ports.

The possible introduction of Small Pox by way of the river necessitated a close watch being kept upon the coasting craft, especially those hailing from Liverpool and Glasgow, but happily neither amongst crew or cargo was there any evidence of infection. Such illnesses as were found on board any of the vessels entering the Port were of a comparatively trivial nature, and of a non-infectious character.

With the commencement of the present year the Local Government Board has instituted a system whereby all cases of an infectious character are notified by the several Port Sanitary Authorities.

These returns are compiled and distributed to all furnishing information, and in this way each Authority has the opportunity of learning at which Ports infectious disease is present, and so of taking such precautions as may be necessary to safeguard its own interests.

H. O. PILKINGTON,

Medical Officer of Health,

Port Sanitary Authority.

May 9th, 1903.

TABLE No. 1.

Number and Causes of Deaths at different Ages, for the Year ending 31st December, 1902.

Cause of Death.	Under 1 Year.	1 to 5	5 to 15	15 to 25	25 to 65	65 and over	Total.	Corres- ponding year 1901.	Corres- ponding year 1900.	Corres- ponding year 1899.	Average for six years.
Small Pox .. .. .	...	...	...	...	...	...	...	...	...	...	...
Fever.....	...	3	4	3	11	...	21	24	44	37	33·83
Scarlatina, &c.....	3	12	4	1	...	...	20	86	32	11	26·34
Measles	15	38	1	...	...	...	54	31	121	41	88·36
Diarrhœa	126	22	...	...	3	3	154	200	199	298	237·37
Whooping Cough.....	19	6	...	...	...	...	25	37	64	53	42·83
Diphtheria .....	...	15	2	...	...	...	17	17	42	36	20·64
Croup	5	9	1	...	...	...	15	8	20	33	17·00
Consumption	1	...	7	25	82	...	115	116	154	140	134·00
Bronchitis.....	84	40	...	1	73	72	270	258	369	315	290·86
Inflammation of Lungs	24	21	3	5	57	10	120	135	174	136	140·00
Teething, Premature Births & Debility }	323	53	10	...	...	...	386	485	596	566	523·17
Old Age .....	...	...	...	...	4	101	105	103	87	99	93·12
Violence, &c.	12	9	4	3	21	6	55	64	49	64	56·64
Other Diseases	6	11	25	31	403	165	641	649	685	663	651·33
Total.....	618	239	61	69	654	357	1998	2213	2636	2492	2355·50

TABLE No. 2.

Number and Causes of Deaths in each Month of the Year ending 31st December, 1902.

Cause of Death.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Small Pox .....	...	...	...	...	...	...	...	...	...	...	...	...	...
Fever.....	...	3	4	...	2	...	2	2	1	2	2	3	21
Scarlatina	4	1	2	...	4	3	1	1	1	1	...	2	20
Measles	36	8	5	...	...	2	...	1	1	...	...	1	54
Diarrhoea .....	..	4	8	3	2	3	5	7	51	56	13	2	154
Whooping Cough.....	1	2	...	3	3	3	...	1	5	3	2	2	25
Diphtheria	1	1	1	3	1	...	1	1	1	2	2	3	17
Croup.....	...	2	2	1	2	2	...	2	..	...	3	1	15
Consumption	17	7	16	6	9	7	9	6	8	11	11	8	115
Bronchitis	20	42	36	16	25	18	5	5	15	18	39	31	270
Inflammation of Lungs.....	7	15	14	12	10	10	7	3	8	4	20	10	120
Teething Convulsions, &c.	26	47	35	20	28	29	21	29	38	36	38	39	386
Old Age.....	11	9	11	11	7	5	8	10	6	10	8	9	105
Violence, &c.....	5	6	7	3	6	4	1	6	3	2	6	6	55
Other Diseases	49	60	62	39	68	58	32	64	37	49	76	47	641
Total	177	207	203	117	167	144	92	138	175	194	220	164	1998

TABLE No. 3.

Number and Causes of Deaths in each Ward for the Year ending 31st December, 1902.

Wards.	Small Pox.	Fever.	Scarlatina, &c.	Measles.	Diarrhoea and Dysentery.	Whooping Cough.	Diphtheria.	Croup.	Consumption.	Bronchitis.	Inflammation of Lungs.	Teething, Pre-mature Births & Debility.	Old Age.	Violence, &c.	Other Diseases.	Total Deaths	Rate per 1000 per annum.	Total Births	Rate per 1000 per annum.	Population
St. John's Ward	2	4	4	22	1	1	1	11	34	15	39	15	4	64	217	18·87	354	30·79	11495
Avenham Ward	1	...	3	2	...	...	...	5	7	3	13	7	4	37	82	11·09	101	13·65	7394
Christ Church Wd.	2	3	10	...	...	...	6	19	15	28	10	...	54	147	16·72	239	27·19	8787
Ashton Ward	2	3	3	2	7	1	...	10	9	5	21	9	1	36	109	14·10	205	26·52	7728
Maudland Ward	2	2	3	6	2	...	2	7	18	12	30	4	6	44	138	17·64	238	30·42	7823
St. Peter's Ward	2	2	11	16	3	3	2	8	33	17	27	6	2	44	176	16·50	343	32·16	10665
Moor Brook Ward	3	...	4	9	1	1	3	9	23	9	30	4	2	40	138	15·13	264	28·95	9119
Park Ward	2	2	7	25	5	3	...	22	29	14	64	17	3	72	265	18·02	482	32·78	14701
Trinity Ward.....	...	4	...	11	25	4	1	1	16	40	11	43	9	6	78	249	22·26	319	28·51	11185
Deepdale Ward	1	3	2	15	1	4	...	7	18	4	35	9	4	46	149	16·51	284	31·48	9020
Ribbleton Ward	1	2	2	13	...	...	4	7	17	6	35	10	...	47	144	16·84	248	29·01	8547
Fishwick Ward	1	...	1	9	1	3	2	7	20	8	20	5	3	43	123	16·84	196	26·84	7302
Gaol, Infirmary &c	3	1	1	...	20	36	61	...	5	...	...
Total.....	...	21	20	54	154	25	17	15	115	270	120	386	105	55	641	1998	17·56	3278	28·81	113766

Death Rate per annum, per 1000 of the Population for the Year17·56
Average Death Rate per annum, per 1,000 of Population, for six years20·33
Do. Do. 10 years 20·81
Death Rate per annum, per 1000 of Population, of Children under one year 5·43
Per centage of Deaths under one year to total Deaths for the Year30·93
Do. Do. for 10 years 35·08

TABLE No. 4.

Number of Deaths in each Ward during each Month of 1902.

WARDS.	January.	February	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Totals.
St. John's Ward	20	12	24	8	25	19	16	11	30	17	16	19	217
Avenham Ward.....	8	10	8	7	8	7	2	7	4	6	5	10	82
Christ Church Ward	6	14	15	12	17	6	7	12	16	13	23	6	147
Ashton Ward	12	15	12	9	9	4	6	9	8	9	9	7	109
Maudland Ward	8	9	13	10	14	17	7	13	10	15	10	12	138
St. Peter's Ward	15	22	19	16	15	8	5	10	24	12	18	12	176
Moor Brook Ward	12	17	10	9	9	9	4	7	15	13	20	13	138
Park Ward	30	29	23	14	18	19	14	16	21	26	29	26	265
Trinity Ward.....	26	20	29	12	22	22	13	16	19	27	25	18	249
Deepdale Ward.....	15	24	15	4	10	11	2	8	7	16	20	17	149
Ribbleton Ward	11	16	8	4	6	11	7	14	10	20	23	14	144
Fishwick Ward.....	12	6	22	5	10	8	7	11	8	16	13	5	123
Gaol, Infirmary, &c.	2	13	5	7	4	3	2	4	3	4	9	5	61
Total.....	177	207	203	117	167	144	92	138	175	194	220	164	1998

TABLE No. 5.

Birth Rate, Death Rate, and Analysis of the Zymotic Death Rate in 33 of the largest English Towns for the Year, comprising 53 weeks, ending 3rd January, 1903. Compiled from the Registrar General's Returns.

Name of Town.	Population	Birth Rate.	Death Rate.	ZYMOTIC DEATH RATE.								Deaths under one year to 1,000 Births.
				Small Pox.	Meas-les.	Scar-let Fever.	Diph-theria.	Who'p-ing Cough	Fever.	Diarr-hœa.	Total.	
London	4,579,107	28·5	17·7	0·28	0·50	0·12	0·25	0·40	0·12	0·54	2·23	140
Croydon	137,917	26·0	13·9	0·08	0·21	0·04	0·20	0·22	0·06	0·49	1·32	131
West Ham	275,404	34·1	17·0	0·54	0·50	0·16	0·45	0·41	0·28	0·84	3·20	149
Brighton	124,539	24·2	15·8	0·00	0·24	0·02	0·28	0·22	0·11	0·38	1·26	125
Portsmouth	191,909	27·0	16·7	0·00	0·33	0·07	0·34	0·48	0·28	0·80	2·32	150
Norwich	113,178	27·8	16·6	0·00	0·31	0·19	0·08	0·57	0·04	0·62	1·83	166
Plymouth.....	110,057	26·9	17·0	0·01	0·42	0·10	0·12	0·23	0·04	0·86	1·80	154
Bristol.....	334,632	27·5	17·3	0·00	1·20	0·18	0·54	0·31	0·16	0·37	2·79	131
Wolverhampton	95,712	31·6	16·3	0·00	0·21	0·16	0·19	0·24	0·13	0·77	1·71	133
Birmingham.....	528,181	31·8	18·6	0·00	0·33	0·54	0·24	0·50	0·19	0·70	2·52	157
Leicester	216,389	29·1	14·8	0·02	0·34	0·05	0·15	0·32	0·05	0·58	1·54	152
Nottingham.....	243,190	27·8	16·6	0·00	0·02	0·10	0·11	0·14	0·20	0·71	1·30	158
Derby	116,982	28·0	13·9	0·00	0·33	0·06	0·10	0·24	0·11	0·41	1·27	124
Birkenhead	112,396	32·7	17·7	0·00	0·31	0·17	0·23	0·52	0·39	0·59	2·25	148
Liverpool.....	692,495	34·2	22·4	0·03	0·46	0·45	0·29	0·58	0·30	0·93	3·07	162
Bolton	171,082	27·3	16·9	0·03	0·16	0·67	0·24	0·32	0·19	0·39	2·02	134
Manchester	549,169	32·8	19·9	0·00	0·44	0·26	0·21	0·44	0·11	0·52	1·99	152
Salford.....	224,007	33·8	19·2	0·00	0·66	0·21	0·32	0·51	0·27	0·63	2·62	156
Oldham	138,091	26·0	19·0	0·04	0·75	0·25	0·33	0·21	0·09	0·31	2·00	147
Burnley	98,383	29·1	19·4	0·03	1·51	0·70	0·45	0·15	0·19	0·59	3·63	177
Blackburn	130,318	25·6	16·9	0·01	0·61	0·23	0·17	0·19	0·16	0·39	1·77	159
Preston	113,766	28·8	19·0	0·00	0·50	0·18	0·23	0·25	0·19	1·41	2·77	188
Huddersfield ...	95,000	24·3	17·7	0·01	0·60	0·11	0·13	0·47	0·06	0·18	1·58	138
Halifax	105,932	21·2	15·6	0·00	0·37	0·14	0·08	0·14	0·14	0·21	1·08	144
Bradford	281,770	22·9	15·8	0·00	0·56	0·16	0·29	0·11	0·11	0·18	1·42	138
Leeds	437,036	29·8	17·5	0·01	0·41	0·12	0·21	0·45	0·17	0·59	1·98	159
Sheffield	418,177	33·3	17·0	0·00	0·46	0·12	0·27	0·17	0·11	0·55	1·69	149
Hull.....	245,448	32·0	17·1	0·00	0·79	0·07	0·35	0·44	0·17	0·41	2·23	136
Sunderland	148,007	35·8	19·4	0·00	0·56	0·16	0·10	0·32	0·23	0·48	1·87	152
Gateshead	113,024	36·7	17·7	0·03	0·72	0·30	0·10	0·45	0·05	0·36	2·04	136
Newcastle	219,150	32·6	19·8	0·05	0·62	0·26	0·10	0·45	0·04	0·25	1·75	138
Cardiff	168,909	31·4	16·7	0·00	1·04	0·21	0·52	0·55	0·05	0·27	2·66	146
Swansea	95,059	31·0	16·0	0·34	0·07	0·17	0·24	0·01	0·06	0·48	1·39	134

TABLE No. 6.

The estimated Population, Number of Births and Deaths, Rates per thousand, and natural increase in the Borough, for each year since 1841.

Years.	Estimated Population	No of Deaths.	Death Rate per 1000.	No. of Births.	Birth Rate per 1000	Natural Increase
1841	51,000	1508	29.57	1974	38.70	466
1842	52,810	1550	29.33	1944	36.79	394
1843	54,680	1459	26.38	1975	36.12	516
1844	56,520	1380	24.42	2200	38.92	820
1845	58,360	1635	28.01	2293	39.29	558
1846	60,200	2189	36.36	2475	41.09	286
1847	62,050	2059	33.18	2268	36.59	209
1848	63,900	1550	24.26	2223	34.79	673
1849	65,750	1751	26.63	2403	36.55	652
1850	67,000	1745	25.81	2649	39.19	904
1851	69,450	2241	32.26	2803	40.36	562
1852	70,850	2284	32.23	2998	42.31	714
1853	72,250	2346	32.47	3072	42.51	726
1854	73,600	2013	27.35	3037	41.26	1024
1855	75,000	2557	34.10	3071	40.95	514
1856	76,400	2251	29.46	3151	41.24	900
1857	77,800	2131	27.39	3286	42.24	1155
1858	79,200	2545	32.13	3082	38.91	537
1859	80,600	2111	26.19	3399	42.17	1288
1860	82,000	2236	27.27	3381	41.23	1145
1861	82,985	2585	31.15	3626	43.69	1041
1862	83,231	2411	28.97	3522	42.32	1111
1863	83,477	2142	25.66	3388	40.57	1246
1864	83,686	2432	29.06	3422	40.89	990
1865	83,932	2708	32.26	3338	39.77	630
1866	84,178	2854	33.90	3535	41.99	681
1867	84,424	2608	30.89	3732	44.20	1124
1868	84,670	2798	33.04	3710	43.82	912
1869	84,916	2248	26.47	3434	40.44	1186
1870	85,162	2406	28.25	3486	40.93	1080
1871	85,427	2541	29.75	3438	40.24	897
1872	85,654	2294	26.78	3704	43.24	1410
1873	86,000	2899	33.71	3558	41.37	659
1874	86,000	2962	34.44	3582	41.65	620
1875	86,000	2581	30.01	3499	40.68	918
1876	86,600	2331	26.92	3623	41.84	1292
1877	87,000	2336	26.85	3601	41.39	1265
1878	87,300	2502	28.66	3697	42.35	1195
1879	87,600	2395	27.34	3403	38.83	1068
1880	88,000	2425	27.35	3475	39.49	1050
1881	96,524	2044	21.17	3489	36.14	1445
1882	97,656	2511	25.71	3785	38.76	1214
1883	98,564	2345	23.79	3576	36.28	1231
1884	99,481	2540	25.53	3745	37.64	1205
1885	100,406	2563	25.52	3868	38.52	1305
1886	101,340	2769	27.32	3961	39.08	1192
1887	102,283	2703	26.42	3870	37.83	1167
1888	103,234	2326	22.53	3823	37.03	1497
1889	104,194	3019	28.97	3912	37.63	902
1890	105,163	2726	25.92	3718	35.35	992
1891	107,864	2807	26.02	3830	35.50	1023
1892	109,038	2481	22.75	3686	33.80	1205
1893	110,225	2753	24.97	3809	34.55	1056
1894	111,425	2186	19.61	3545	31.81	1359
1895	112,638	2528	22.44	3702	32.95	1174
1896	113,864	2191	19.24	3673	32.25	1482
1897	115,103	2687	23.34	3687	32.03	1000
1898	116,356	2107	18.10	3559	30.58	1452
1899	117,622	2492	21.18	3492	29.68	1000
1900	118,902	2636	22.16	3410	28.67	774
1901	113,117	2213	19.56	3418	30.21	1205
1902	113,766	1998	17.56	3278	28.81	1280

TABLE No. 7.

Per Centage of Deaths from Zymotic Diseases to Sickness reported during the
Year ending December 31st, 1902.

Disease.	No. of Cases Reported.	No. of Deaths.	Per Centage.
Small Pox	18	...	...
Typhoid Fever	152	21	13·82
Scarlet Fever	614	20	3·25
Diphtheria	60	17	28·33
Puerperal Fever	10	4	40·00
Erysipelas	70	5	7·14

TABLE No. 8.

Meteorological Observations for the Year ending 31st December, 1902.

Month.	Attached Thermometer.	Barometer.	Barometer corrected to 32deg. Fahr.	Hygrometer.		Temperature in Shade.		Earth Thermometer.		Mean Daily Temperature.	Humidity Saturation=100	Temperature of Town's Water.	Rainfall in inches.	Number of Deaths from	
				Dry Bulb.	Wet Bulb.	Maxi- mum.	Mini- mum.	One Foot	Four Feet.					Bronchitis.	Diarrhoea.
January.....	40·70	29·985	30·112	41·02	41·84	44·59	37·08	41·69	43·62	40·90	93	42·4	3·57	20	...
February ...	34·81	29·719	29·847	35·31	29·01	39·53	31·03	35·71	40·30	35·21	62	37·4	1·74	42	4
March	43·39	29·701	29·841	43·63	42·50	48·10	39·41	42·03	43·40	43·82	89	44·0	2·41	36	8
April	45·54	29·831	29·929	46·91	43·96	51·88	39·42	43·39	44·76	46·10	79	47·3	2·64	16	3
May	48·71	29·936	30·026	49·28	45·17	53·42	42·49	46·25	46·69	48·37	72	51·6	2·56	25	2
June	57·28	29·836	29·900	58·67	54·63	63·70	50·53	53·03	51·37	57·64	75	57·8	1·33	18	3
July	59·45	29·924	29·998	59·31	55·71	63·93	52·31	56·14	55·56	58·39	78	62·4	3·63	5	5
August	57·35	29·832	29·898	58·24	55·64	62·67	51·42	54·85	55·21	57·51	83	60·1	2·90	5	7
September...	56·21	29·943	30·010	56·57	54·22	61·78	50·52	54·48	55·28	56·33	81	59·0	1·38	15	51
October	50·46	29·903	29·986	51·61	49·54	54·28	46·04	49·93	52·15	50·23	84	52·8	3·92	18	56
November ...	44·83	29·749	29·849	45·41	44·09	48·44	41·44	46·07	49·23	44·94	89	47·2	1·43	39	13
December ...	41·40	29·825	29·935	42·58	41·04	44·74	37·96	42·41	45·30	41·35	89	42·8	3·68	31	2

TABLE No. 9.

Summary of Work done during the Year ending 31st December, 1902.

	No. 1 District.	No. 2 District.	No. 3 District	No. 4 District.	TOTAL.
Number of Ashpails cleansed .....	...	...	...	...	1,089,399
„ Ashpits „ .....	...	...	...	...	11,436
„ Animals removed	9	17	4	13	43
Houses Disinfected	228	301	184	208	921
Schools „	8	19	12	16	55
Parcels of Bedding disinfected	14	13	8	19	54
Number of Complaints received	532	348	467	897	2,244
Inspections of Dwelling Houses	2584	3642	3095	2473	11,794
„ Infected Houses	743	1907	765	807	4,222
„ Lodging Houses	59	570	156	1196	1,981
„ Cellars	195	319	205	536	1,255
„ Canal Boats .. ...	...	...	...	96	96
„ Vans and Tents	90	105	54	91	340
„ Schools	97	136	69	193	495
„ Cowsheds, Dairies, and Milkshops	108	117	121	120	466
„ Slaughter Houses	40	74	44	129	287
„ Markets .....	...	312	35	584	931
„ Ashpits and Yards	4203	5093	3475	3975	16,746
„ Drains	4371	5490	3501	4745	18,107
Re-inspections	1626	2128	1976	1739	7,469
Smoke Observations	5	...	...	3	8
Circular Letters sent .....	...	..	...	198	198
Notices served for Defective Slopstone Pipes	28	38	30	29	125
„ „ Drains	179	186	183	143	691
„ „ Spouts	27	49	12	21	109
„ „ Water Closets	78	90	101	102	371
„ „ Privies and Ashpits	29	44	8	12	93
„ „ Yard Pavement	15	75	11	10	111
„ Overcrowding .....	...	...	...	5	5
„ Limewashing	19	74	12	30	135
„ Manure Accumulations ...	1	8	4	3	16
„ Stagnant Water.....	4	...	20	29	53
„ General Nuisances	37	30	21	101	189
House Drains Tested	37	62	108	42	249
Notices Served to Sewer, Level, Pave, &c.	548	...	196	494	1,238
„ Flag Yards	298	524	482	199	1,503
„ Convert Privies into W.C's.	311	383	374	208	1,276
„ Fill up Ashpits .....	...	8	...	...	8
„ Provide through Ventilation.....	...	6	...	...	6
„ Close Houses unfit for Habitation	...	...	1	18	19
Fish, Shell—Condemned and Destroyed .....	...	...	...	550lbs.	
„ Wet „ „ .....	...	...	...	9210 „	10,469lbs
„ Dry „ „ .....	...	...	...	709 „	
Rabbits „ „ .....	...	...	...	18	18

TABLE No. 10.

Summary of Work done under Factory and Workshops Act for Year ending 31st December, 1902.

	No. 1 District.	No. 2 District.	No. 3 District.	No. 4 District.	TOTAL.
Number of Workshops on Register	56	152	84	140	432
„ Retail Bakehouses on Register	12	18	6	18	54
„ Public „ „	8	10	7	6	31
„ Circular Letters sent re Out-workers ... ..	...	50	...	38	88
„ Outworkers Reported ... ..	...	46	6	42	94
Visits to Factories and Workshops	497	813	504	864	2678
„ Retail Bakehouses	39	90	36	146	311
„ Public „	62	44	40	98	244
Workshops closed as unfit for Habitation ... ..	...	...	...	2	2
Defective Drains	5	3	3	3	14
„ Spouts ... ..	...	1	2	1	4
„ Water Closets	2	3	6	2	13
„ Privies and Ashpits	1	...	...	2	3
Privies Converted into Water Closets ... ..	...	...	...	5	5
Overcrowding	1	...	...	3	4
Limewashing	4	14	8	21	47
General Nuisances	2	4	3	5	14
Openings to Drains in Bake-houses ... ..	...	...	...	11	11
Cellar Bake-houses Closed	1	...	...	1	2
Defective Staircase ... ..	...	..	...	3	3
W.C. Removed from Bake-house ... ..	...	..	...	1	1
Sufficient Ventilation Provided	1	2	...	...	3

TABLE No. 11.

Return of Work done by Inspector of Food and Drugs, &c., for the year 1902.

Food and Drugs, Samples purchased	.....	.....	220
Cow-sheds and Dairies visited...	.....	.....	107
Slaughter-houses visited	.....	.....	4,077
Meat Condemned and Destroyed	.....	.....	149,026 lbs.
Fruit Do. Do.	.....	.....	2,240 lbs.
Meat Seized and Destroyed.....	.....	.....	380 lbs.

TABLE No. 12.

Contagious Diseases (Animals) Act, 1878.

Name of Disease.	Situation of Premises.	Date of Outbreak.	Number of Diseased Animals.	Number of Healthy Animals.	Slaughtered by Owner.	Slaughtered by order of Board of Agriculture.	Number of Visits.
Glanders.	Yard off Bolton's Court	February 22nd, 1902	4	3	4	...	30

TABLE No. 13.

Substances submitted for Analysis during the Year 1902.

Name of Article.	No. of Samples.	Result.	Name of Article.	No. of Samples.	Result.
Milk	63	Genuine.	Cayenne Pepper ...	3	Genuine.
Milk, Skimmed	6	Do.	Arrowroot	1	Do.
Cheese	10	Do.	Mace.....	2	Do.
Butter	46	Do.	Chocolate	5	Do.
Lard	14	Do.	Sweets	2	Do.
Bread	1	Do.	Syrup	2	Do.
Coffee	16	Do.	Yeast	2	Do.
Mustard	1	Do.	Rum	1	Do.
Pepper	5	Do.	Whiskey	17	Do.
White Pepper	7	Do.			
Milk	1	1·84 per cent. fat, 9·96 per cent. other solids=11·8 per cent. total solids.			
Milk	1	2·76 per cent. fat, 8·43 per cent. other solids=11·19 per cent. total solids. Vendor cautioned by Town Clerk.			
Milk	1	2·78 per cent. fat, 9·07 per cent. other solids=11·85 per cent. total solids. Vendor cautioned by Town Clerk.			
Milk	1	Slightly deficient in cream but passable.			
Milk, Skimmed.....	1	0·92 per cent fat, 7·96 per cent. other solids=8·88 per cent. total solids. Vendor cautioned by Town Clerk.			
Butter	1	11·88 per cent water, 83·65 per cent. margarine, 0·45 per cent. boric acid. Vendor summoned and fined £5 and costs.			
Coffee	1	Contained 60 per cent. chicory. Vendor summoned and fined 10/- and costs.			
Coffee	1	Contained 19 per cent. chicory. Vendor cautioned by Town Clerk.			
Butter	1	Rancid and doubtful.			
Butter	1	Of doubtful purity.			
Butter	1	Contained borates equal to 19 grains of boric acid per lb.			
Butter	1	Contained borates and was slightly rancid.			
Pepper	1	Contained 12 per cent excess of husks.			
Mace.....	1	Contained about 25 per cent. of wild mace. Vendor cautioned by Town Clerk.			
Mace.....	1	Contained upwards of 15 parts per cent. of ground rice.			
Mace.....	1	Contained upwards of 7 parts per cent. of ground rice.			

TABLE No. 14.

Return of Port Sanitary Work for the Year ending December 31st, 1902.

Steamships Inspected	.....	.....	.....	.....	816
Sailing Vessels Inspected	.....	.....	.....	.....	136
Re-Inspections	.....	.....	.....	.....	257
Condition of Vessels Inspected	{	Good	.....	.....	789
		Defective	.....	.....	163
<i>Defects remedied.</i>					
Forecastle Dirty	.....	.....	.....	.....	60
Do. Required Painting	.....	.....	.....	.....	31
Do. Deck Leaking	.....	.....	.....	.....	4
Do. Ventilation and Light Defective	.....	.....	.....	.....	5
Paints stored in Forecastle	.....	.....	.....	.....	2
Defective Ventilation of Water Closets	.....	.....	.....	.....	19
Foul and Defective	do.	.....	.....	.....	69
Defective Water Casks replaced with Iron Tanks	.....	.....	.....	.....	3
Foul Water Casks and Tanks	.....	.....	.....	.....	41
Dirty Provision Lockers	...	.....	.....	.....	10
Foul Bilges	.....	.....	.....	...	15
Do. Peaks	.....	.....	...	.....	9
Do. Chain Lockers under Forecastle	.....	.....	.....	.....	18

TABLE IA.

Vital Statistics of Whole District during 1902 and Previous Years.

YEAR.	Population estimated to Middle of each year.	BIRTHS.		DEATHS UNDER 1 YEAR OF AGE		DEATHS AT ALL AGES. TOTAL.		Total Deaths in Public Institu- tions in the District.	Deaths of Residents registered in Public Institu- tions beyond the District. (Work- house.)	DEATHS AT ALL AGES. NETT.	
		Number	Rate*	Number	Rate per 1,000 Births registered	Number	Rate*			Number	Rate*
1892.	109,038	3686	33·80	805	216	2481	22·75	55	199	2671	24·49
1893.	110,225	3809	34·55	1032	268	2753	24·97	48	150	2903	26·33
1894.	111,425	3545	31·81	770	217	2186	19·61	56	129	2315	20·77
1895.	112,638	3702	32·95	927	249	2528	22·44	81	161	2689	23·87
1896.	113,864	3673	32·25	760	204	2191	19·24	58	151	2342	20·56
1897.	115,103	3687	32·03	954	263	2687	23·34	63	166	2853	24·78
1898.	116,356	3559	30·58	812	221	2107	18·10	81	138	2245	19·29
1899.	117,622	3492	29·68	889	255	2492	21·18	85	181	2673	22·72
1900.	118,902	3410	28·67	814	236	2636	22·16	66	200	2836	23·85
1901.	113,117	3418	30·21	737	218	2213	19·56	75	149	2362	20·88
Averages for years 1892-1901	113,829	3598	31·65	830	234	2427	21·33	66	162	2588	22·75
1902.	113,766	3278	28·81	618	188	1998	17·56	61	144	2142	18·82

*Rates calculated per 1,000 of estimated population.

Area of District in acres (exclusive
of area covered by water) } 3,721.

Total population at all ages.....112,982
Number of inhabited houses.....24,194
Average number of persons per house 4·66

} At Census
of 1901.

TABLE 2A.

Vital Statistics of separate Localities in 1902 and previous year.

Localities.	1901.				1902.			
	Population estimated to middle of each year.	Births registered.	Deaths at all Ages.	Deaths under 1 year.	Population estimated to middle of each year.	Births registered.	Deaths at all ages.	Deaths under 1 year.
St. John's Ward	11409	378	212	65	11495	354	217	71
Avenham Ward.....	7363	132	110	22	7394	101	82	13
Christ Church Ward	8753	254	159	48	8787	239	147	42
Ashton Ward	7688	210	98	33	7728	205	109	26
Maudland Ward	7783	213	130	50	7823	238	138	44
St. Peter's Ward	10597	352	213	67	10655	324	176	61
Moorbrook Ward.....	9080	315	183	78	9119	264	138	47
Park Ward	14592	492	290	124	14701	482	265	91
Trinity Ward	11098	338	243	66	11185	319	249	83
Deepdale Ward.....	8986	272	156	62	9020	284	149	51
Ribbleton Ward	8506	266	201	68	8547	248	144	54
Fishwick Ward	7262	195	143	50	7302	196	123	35
Public Institutions .....	...	1	75	5	...	5	61	4

TABLE 3A.

Cases of Infectious Disease notified during the Year 1902.

NOTIFIABLE DISEASE.	CASES NOTIFIED IN WHOLE DISTRICT.							TOTAL CASES NOTIFIED IN EACH LOCALITY.												
	At all ages.	At Ages — Years.						St. John's Ward.	Avenham Ward.	Christ Church Ward.	Ashton Ward.	Maudland Ward.	St Peter's Ward.	Moorbrook Ward.	Park Ward.	Trinity Ward.	Deepdale Ward.	Ribbleton Ward.	Fishwick Ward.	Gaol, &c. Infirmary.
		Under 1 Year.	1 to 5	5 to 15	15 to 25	25 to 65	65 and up-wards													
Small Pox	18	1	1	7	2	7	...	10	...	...	...	...	1	...	2	1	1	3	...	...
Cholera ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Diphtheria	60	2	34	18	4	2	...	4	3	6	4	3	6	4	9	6	8	2	5	...
Membranous Croup	8	...	5	3	...	...	...	1	...	2	...	...	...	...	1	2	1	...	1	...
Erysipelas	70	3	4	4	8	43	8	10	4	5	2	6	1	6	7	13	6	5	5	...
Scarlet Fever	614	8	214	357	24	11	...	33	24	61	39	61	62	63	93	41	62	52	22	1
Typhus Fever ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Enteric Fever	152	...	13	49	35	54	1	15	3	9	5	8	14	11	21	24	19	14	9	...
Relapsing Fever... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Continued Fever	2	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...	2	...	...	...
Puerperal Fever	10	...	...	...	...	10	...	1	1	2	1	1	1	...	1	1	...	...	1	...
Plague ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Totals	934	14	271	438	73	129	9	74	35	85	51	79	85	84	134	88	99	76	43	1

TABLE 4A.

Causes of, and Ages at, Death during Year 1902.

CAUSES OF DEATH.	Deaths in or belonging to whole District at subjoined Ages.							Deaths in Localities (at all ages.)											Deaths in Public Institutions.	Deaths in Workhouse.	
	All Ages.	Under 1 Year.	1 and under 5	5 and under 15	15 and under 25	25 and under 65	65 and upwards.	St. John's Ward.	Avenham Ward.	Christ Church Ward.	Ashton Ward.	Maudland Ward.	St. Peter's Ward.	Moorbrook Ward.	Park Ward.	Trinity Ward.	Deepdale Ward.	Ribbleton Ward.			Fishwick Ward.
Small-pox .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Measles ..	54	16	37	1	...	...	...	4	3	3	3	3	11	4	7	11	2	2	1	...	...
Scarlet Fever ...	20	3	11	5	1	...	...	4	...	2	3	2	2	...	2	...	3	2	...	...	...
Whooping Cough ...	25	19	6	...	...	...	...	1	...	...	7	2	3	1	5	4	1	...	1	...	...
Diphtheria and Membranous Croup	17	...	15	2	...	...	...	1	...	...	1	...	3	1	3	1	4	...	3	...	...
Croup	22	5	15	2	...	..	...	1	...	2	...	2	2	3	1	3	1	4	3	...	...
Fever { Typhus .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Enteric	21	...	4	4	3	10	...	2	1	...	2	2	2	3	2	4	1	1	1	...	...
Other continued .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Epidemic Influenza	23	2	1	...	...	16	4	2	...	1	1	2	1	1	2	3	3	3	4	...	...
Cholera ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Plague .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Diarrhœa...	158	127	24	...	...	4	3	22	2	10	2	7	16	9	25	26	15	13	9	...	2
Enteritis	17	7	5	2	1	2	...	4	1	1	2	2	2	...	1	2	...	1	1	...	...
Puerperal Fever	4	...	...	...	...	4	...	...	1	1	...	...	...	...	1	1	...	...	...	...	...
Erysipelas	6	...	...	...	...	5	1	1	...	...	...	...	...	...	1	2	1	...	...	...	1
Other Septic Diseases	1	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...
Phthisis	138	2	...	8	27	100	1	11	5	6	11	7	8	9	23	16	8	7	7	...	20
Other Tubercular Diseases.....	135	94	23	9	5	3	1	14	7	4	3	14	9	9	22	13	10	19	7	3	1
Cancer, Malignant Disease ...	85	...	...	1	...	58	26	14	4	7	9	7	4	5	10	4	3	2	4	3	9
Bronchitis	289	87	41	...	1	77	83	34	6	19	9	19	33	23	29	40	18	17	20	3	19
Pneumonia	135	26	20	4	7	61	17	15	5	15	5	12	18	9	14	11	6	5	8	1	11
Pleurisy .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Other Diseases of Respiratory organs	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Alcoholism	33	...	...	...	...	28	5	4	1	6	1	...	2	...	7	6	2	...	1	1	2
Cirrhosis of Liver } .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Venereal Diseases ...	5	5	...	...	...	...	...	...	...	...	...	...	...	1	1	2	...	...	...	...	1
Premature Birth	89	89	...	...	...	...	...	7	2	9	9	8	7	8	16	6	5	8	3	...	1
Diseases and accidents of Parturition	10	...	...	...	3	7	...	1	...	...	2	...	...	2	...	1	1	3	...	...	...
Heart Diseases	198	3	2	3	10	101	79	16	9	15	12	15	13	14	12	24	10	19	14	7	18
Accidents	48	11	10	3	3	15	6	4	4	...	1	6	2	2	3	5	2	...	3	16	...
Suicides	4	...	...	...	...	3	1	...	...	...	...	...	...	...	...	1	1	...	...	2	...
Old Age ...	119	...	...	...	...	4	115	15	9	10	9	4	6	4	17	9	9	10	5	...	12
All other causes	488	132	28	13	18	205	90	40	22	36	17	23	32	30	61	54	43	28	8	25	47
All causes	2142	628	242	57	79	704	432	217	82	147	109	138	176	138	265	249	149	144	123	61	144

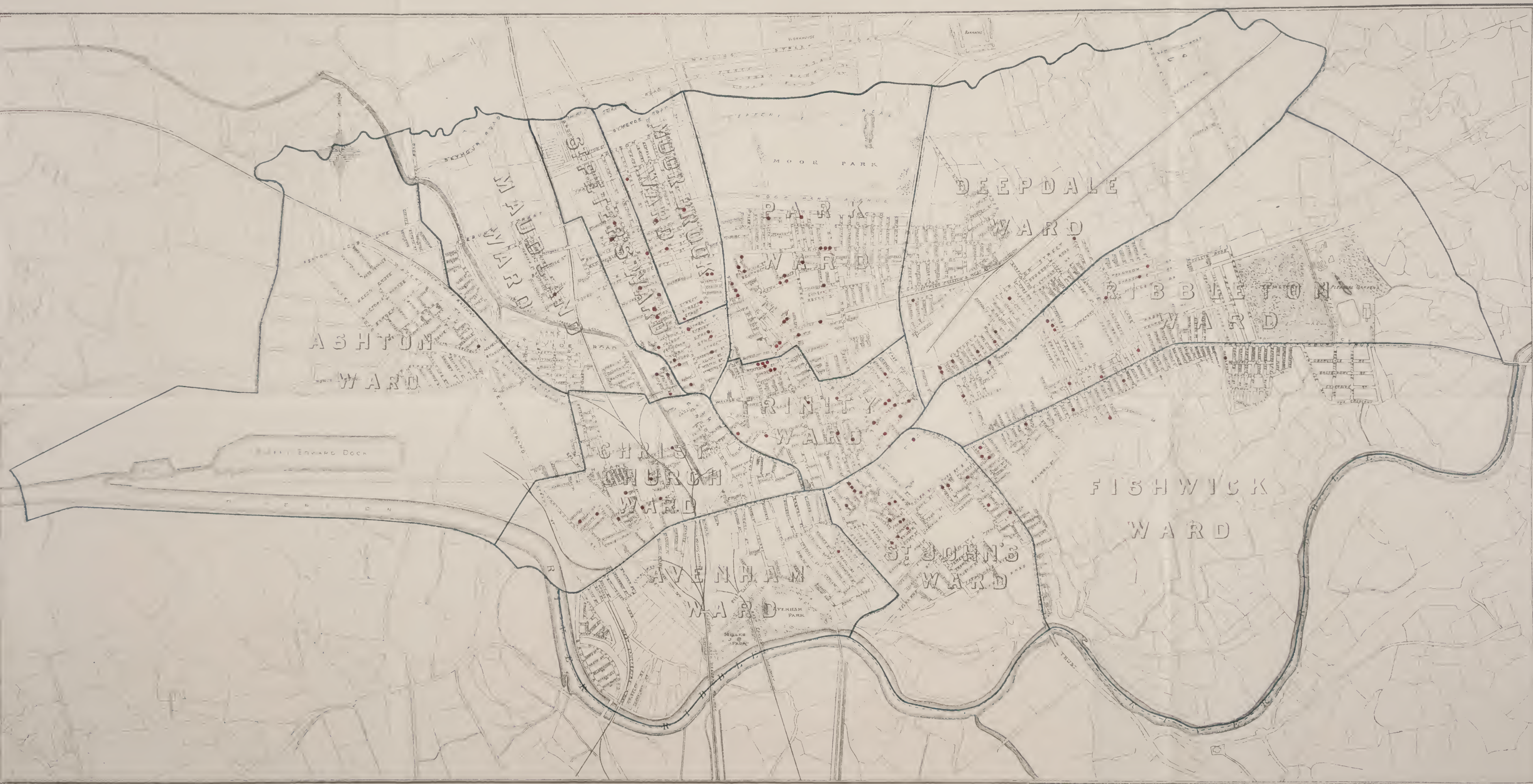
34 INFANTILE MORTALITY, 1902. 48





INFANTILE DIARRHŒA, 1902.

The Red Spots • indicate deaths from Diarrhœa under the age of One Year.



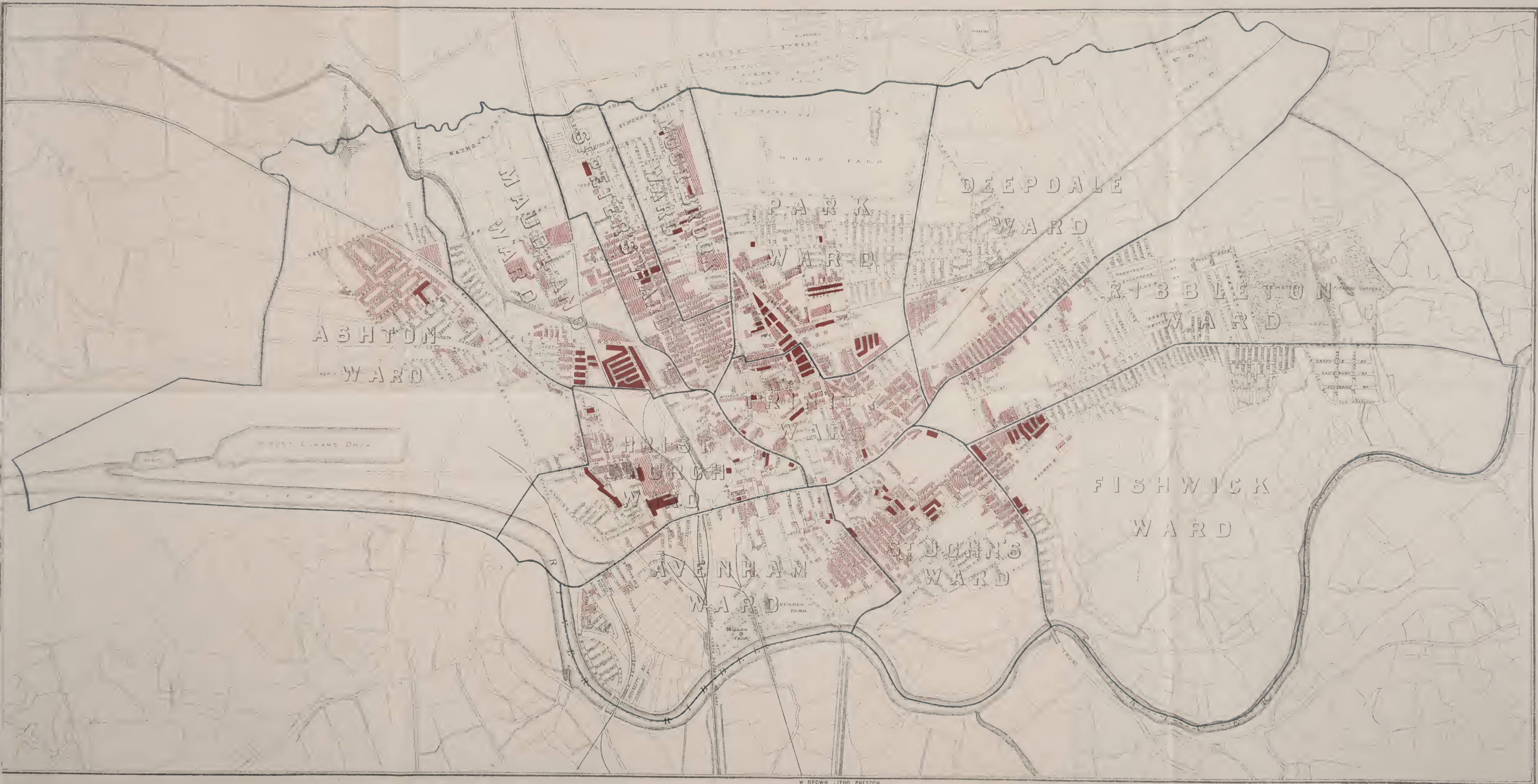
ZYMOTIC DISEASES, 1902.

- The Red Spots • indicate deaths from Scarlet Fever.
The Blue Spots • indicate deaths from Typhoid Fever.
The Yellow Spots • indicate deaths from Diphtheria.



Portions coloured Red indicate Property reported upon and Improved during the Year 1902.

Those in lighter shade indicate Blocks dealt with during the previous Eighteen Years.





JAN.	FEB.	MAR.	APR.	MAY.	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.
25 11	8 22	8 22	5 19	3 17	14 28	12 26	9 23	6 20	4 18	15 29	13 27
2.00	1.00	0.69	0.57	1.23	1.34	1.64	0.75	1.14	1.29	1.17	0.56
1.00	0.69	0.57	1.23	1.34	1.64	0.75	1.14	1.29	1.17	0.56	0.19
70	69	68	67	66	65	64	63	62	61	60	59
60	59	58	57	56	55	54	53	52	51	50	49
48	47	46	45	44	43	42	41	40	39	38	37
36	35	34	33	32	31	30	29	28	27	26	25
24	23	22	21	20	19	18	17	16	15	14	13
12	11	10	9	8	7	6	5	4	3	2	1
0											

RAINFALL
IN INCHES

RAINFALL
IN INCHES

MEAN DAILY
TEMPERATURE
EARTH TEMPERATURE
4 FT.

MEAN DAILY
TEMPERATURE
EARTH TEMPERATURE
4 FT.

MORTALITY FROM
BRONCHITIS

MORTALITY FROM
BRONCHITIS

MORTALITY FROM
DIARRHOEA.

MORTALITY FROM
DIARRHOEA.



